

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) An apparatus for removing air or debris from a flow of liquid, the apparatus comprising:

a shell having an inlet, an outlet, and an inner cavity in fluid communication with each of the inlet and the outlet; and

at least one elongate coalescing medium assembly disposed within the cavity of the shell, each coalescing medium assembly including a plurality of wire mesh tubes oriented substantially parallel to each other, each wire mesh tube having ends, a longitudinal axis extending between the ends, and a side wall extending between the ends, and the flow of liquid being directed to travel in a radial direction across the plurality of wire mesh tubes to radially enter and radially exit the side walls of the plurality of wire mesh tubes; the at least one assembly further including at least one elongate core element contacting the plurality of wire mesh tubes and oriented substantially parallel to the plurality of wire mesh tubes, the elongated core element having a rigidity greater than the wire mesh tubes to support the plurality of wire mesh tubes against the flow of liquid in the radial direction across the plurality of wire mesh tubes.

2-4. (Cancelled).

5. (Previously Presented) The apparatus of Claim 1, further comprising an end cap including a plurality of recesses, an end of each of the core elements being received in a respective one of the recesses.

6-20. (Cancelled)

21. (Currently Amended) An apparatus for removing air or debris from a flow of liquid, the apparatus comprising:

a shell having an inlet, an outlet, and an inner cavity in fluid communication with each of the inlet and the outlet, the inner cavity having a direct flow path space positioned directly between the inlet and outlet, and

a plurality of tubes positioned within the inner cavity of the shell such that the tubes are oriented substantially parallel to each other and upper ends of the tubes being positioned above

the inlet, each of the tubes having a longitudinal axis, and at least one of the tubes having a surface with a plurality of apertures, a minority portion of the plurality of tubes being positioned in the direct flow path ~~space of the flow of liquid directly between the inlet and outlet of the shell~~ with the flow of fluid between the inlet and outlet flowing directly across the minority portion of the plurality of tubes in a substantially radial direction, a majority portion of the plurality of tubes being larger than the minority portion of the plurality of tubes and positioned outside of the direct flow path ~~space of the liquid directly between the inlet and outlet of the shell~~; and

an air vent positioned to release air that is removed from the flow of liquid by the plurality of tubes.

22. (Previously Presented) The apparatus of Claim 21, wherein the flow of liquid flows into and out of the tubes in a direction substantially transverse to the longitudinal axes of the tubes.

23. (Previously Presented) The apparatus of Claim 21, wherein the air vent is positioned above the plurality of tubes.

24. (Currently Amended) The apparatus of Claim 21, wherein the shell further comprises a bottom section including an aperture that is substantially smaller than the inlet and configured to permit removal of debris that settles out of the flow of liquid.

25. (Previously Presented) The apparatus of Claim 21, wherein the shell further comprises a bottom section that is removably attached to the remainder of the shell.

26. (Previously Presented) The apparatus of Claim 21, wherein the shell further comprises a bottom section including a valve configured to permit selective removal of debris that settles out of the flow of liquid.

27. (Previously Presented) The apparatus of Claim 1, wherein the ends of each wire mesh tube are positioned at first and second longitudinal positions along the longitudinal axis, and the outlet has a longitudinal position between the first and second longitudinal positions of the ends.

28. (Previously Presented) The apparatus of Claim 1, wherein each coalescing medium assembly further includes a coupling element surrounding the plurality of wire mesh tubes and holding the plurality of wire mesh tubes together.

29. (Previously Presented) The apparatus of Claim 28, wherein each coalescing medium assembly includes a band wrapped around the coupling element and holding the coupling element in engagement with the plurality of wire mesh tubes.

30. (Previously Presented) The apparatus of Claim 1, wherein at least one of the wire mesh tubes includes a wire mesh projection extending from an inner surface of the wire mesh tube and into an interior of the wire mesh tube.

31. (Previously Presented) An apparatus for removing air or debris from a flow of liquid, the apparatus comprising:

a shell having an inlet, an outlet, and an inner cavity in fluid communication with the inlet and the outlet; and

at least one elongate coalescing medium assembly disposed within the inner cavity of the shell, each coalescing medium assembly including:

at least one elongate core element; and

a plurality of wire mesh tubes, each of the wire mesh tubes having a longitudinal axis, the wire mesh tubes cooperating to define at least one interior space therebetween, and the at least one elongate core element having a rigidity greater than the plurality of wire mesh tubes and being positioned within the interior space in an orientation substantially parallel to the plurality of wire mesh tubes to support the plurality of wire mesh tubes against the flow of liquid through the apparatus.

32. (Previously Presented) The apparatus of Claim 31, further comprising an end cap including at least one recess, an end of each of the elongate core elements being received in a respective one of the recesses.

33. (Previously Presented) The apparatus of Claim 31, wherein the elongate core element comprises a cylindrical tube.

34. (Previously Presented) The apparatus of Claim 31, wherein the wire mesh tubes are arranged in a substantially circular pattern when viewed along the longitudinal axes of the wire mesh tubes such that each wire mesh tube engages two adjacent ones of the wire mesh tubes.

35. (Previously Presented) The apparatus of Claim 31, wherein the plurality of wire mesh tubes are formed of substantially horizontal wires and interconnected substantially vertical wires.

36. (Currently Amended) An apparatus for removing air or debris from a flow of liquid, the apparatus comprising:

a shell having an inlet, an outlet, and an inner cavity in fluid communication with each of the inlet and the outlet; and

at least one elongate coalescing medium assembly disposed within the inner cavity of the shell, each coalescing medium assembly including a plurality of wire mesh tubes oriented substantially parallel to each other, each wire mesh tube having ends and a longitudinal axis extending between the ends, and the flow of liquid flowing in a direction substantially transverse to the longitudinal axis of the plurality of wire mesh tubes, each coalescing medium assembly further comprising a wire mesh retaining wall surrounding the plurality of tubes.

37. (Previously Presented) The apparatus of Claim 36, wherein the ends of each wire mesh tube are positioned at first and second longitudinal positions along the longitudinal axis, and the outlet has a longitudinal position between the first and second longitudinal positions of the ends.

38. (Previously Presented) The apparatus of Claim 36, further comprising an air vent positioned above the plurality of wire mesh tubes to release air that is removed from the flow of liquid by the plurality of wire mesh tubes.

39. (Previously Presented) The apparatus of Claim 36, wherein the shell further comprises a bottom section that is removably attached to the remainder of the shell.

40. (Previously Presented) The apparatus of Claim 36, wherein the shell further comprises a bottom section including a valve configured to selectively remove debris that settles out of the flow of liquid.

41. (Previously Presented) The apparatus of Claim 36, wherein the at least one coalescing medium assembly further comprises at least one elongate core element oriented substantially parallel to the plurality of wire mesh tubes to support the plurality of wire mesh tubes against the flow of liquid through the apparatus.

42. (Previously Presented) The apparatus of Claim 36, wherein each wire mesh tube includes a sidewall extending between the ends and the liquid enters and exits the sidewalls while passing through the wire mesh tubes.

43. (Previously Presented) The apparatus of Claim 1, wherein the outlet is substantially devoid of flow restrictions.

44. (Previously Presented) The apparatus of Claim 1, wherein the inlet has a minimum cross-sectional area of flow and the outlet has a minimum cross-sectional area of flow that is substantially equal to the minimum cross-sectional area of flow of the inlet.

45. (Previously Presented) The apparatus of Claim 1, wherein the inner cavity of the shell has an interior diameter and the plurality of wire mesh tubes have diameters and the diameter of each of the plurality of wire mesh tubes is substantially less than the interior diameter of the inner cavity.

46. (Previously Presented) The apparatus of Claim 1, wherein the flow of fluid enters the wire mesh tubes by passing through wire mesh of the tubes.

47. (Previously Presented) The apparatus of Claim 1, wherein the velocity of the flow of fluid is substantially greater in the inlet than in the cavity of the shell.

48. (Cancelled).

49. (Previously Presented) The apparatus of Claim 21, wherein the outlet is substantially devoid of flow restrictions.

50. (Previously Presented) The apparatus of Claim 21, wherein the inlet has a minimum cross-sectional area of flow and the outlet has a minimum cross-sectional area of flow that is substantially equal to the minimum cross-sectional area of flow of the inlet.

51. (Previously Presented) The apparatus of Claim 31, wherein the inner cavity of the shell has an interior diameter and the plurality of wire mesh tubes have diameters and the diameter of each of the plurality of wire mesh tubes is substantially less than the interior diameter of the inner cavity.

52. (Previously Presented) The apparatus of Claim 31, wherein the flow of fluid enters the wire mesh tubes by passing through wire mesh of the tubes.

53. (Previously Presented) The apparatus of Claim 36, wherein the outlet is substantially devoid of flow restrictions.

54. (Previously Presented) The apparatus of Claim 36, wherein the inlet has a minimum cross-sectional area of flow and the outlet has a minimum cross-sectional area of flow that is substantially equal to the minimum cross-sectional area of flow of the inlet.

55. (Previously Presented) The apparatus of Claim 36, wherein the inner cavity of the shell has an interior diameter and the plurality of wire mesh tubes have diameters and the diameter of each of the plurality of wire mesh tubes is substantially less than the interior diameter of the inner cavity.

56. (Previously Presented) The apparatus of Claim 36, wherein the flow of fluid enters the wire mesh tubes by passing through wire mesh of the tubes.

57. (Previously Presented) The apparatus of Claim 36, wherein the velocity of the flow of fluid is substantially greater in the inlet than in the cavity of the shell.

58. (Cancelled).

59. (Previously Presented) The apparatus of Claim 36, wherein the plurality of wire mesh tubes include a plurality of openings of about 0.25 inches.

60. (Currently Amended) The apparatus of Claim 21, wherein a first segment of the majority portion of the plurality of tubes is positioned below the direct flow path space of the flow of liquid and the first segment is larger than the minority portion of the plurality of tubes.

61. (Currently Amended) The apparatus of Claim 60, wherein a second segment of the majority portion of the plurality of tubes is positioned above the direct flow path space across the direct flow path space from the first mentioned segment and the second mentioned segment is larger than the minority portion of the plurality of tubes.

62. (Previously Presented) The apparatus of Claim 1, wherein the at least one elongate coalescing medium assembly includes a plurality of elongate coalescing medium assemblies and at least one of the elongate coalescing medium assembly is centered between the other elongate coalescing medium assemblies.